

COURSE CODE(CREDITS): 18B11CE415 (03)

MAX. MARKS: 35

COURSE NAME: Mechanics of Solids

COURSE INSTRUCTORS: Mr. Chandra Pal Gautam

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.1. (a) Explain the significance of principal stresses. What does a Mohr circle of zero radius, represent in real life.

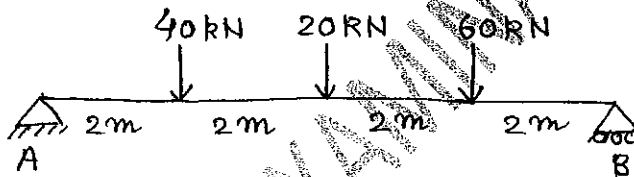
(b) How does calculation of deflection and slope help in design of a structure?

(c) How does the shape of beam is determined in design of a structure?

[CO - 1 & 2] [2+2+2 = 6]

Q.2. Draw the shear force and bending moment for the given beam.

[CO-3] [7]

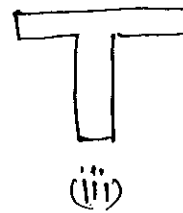
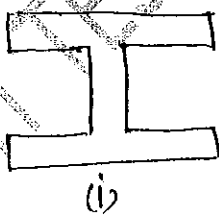


Q.3. A simply supported rectangular beam of depth 350mm and width 100mm is subjected with uniformly distributed load of 45kN/m. Find the maximum bending stress developed in the beam.

[CO-4][5]

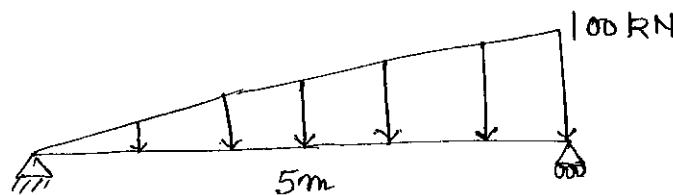
Q.4. For the given beam, draw the shear stress pattern along the depth.

[CO-4][3]



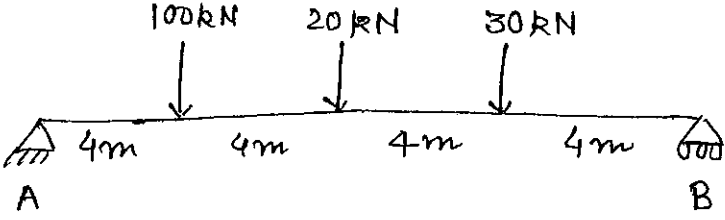
Q.5 For the given beam, find the slope at A and deflection at 3m from A, using double integration method.

[CO-5] [7]



Q.6 For the given beam, find the slope and deflection at mid point the beam by using Singularity function.

[CO-5] [7]



UNIT TEST 3 EXAMINATION - June-2024